

# **BCASA NEWSLETTER**

## **Boston Chapter of the American Statistical Association**

*Serving*

Maine, Massachusetts, New Hampshire, and Vermont

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Volume 24, No. 1, September 2005

Homepage: <http://www.amstat.org/chapters/boston>

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### SCHEDULED EVENTS

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September 19, 2005	BCASA Evening Lecture	Cambridge, MA
October 22, 2005	BCASA Short Course	Northampton, MA
October 28-30, 2005	Health Policy Research Conference	Boston, MA
November 12, 2005	BCASA Short Course	Natick, MA

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Event schedule at the chapter website: <http://www.amstat.org/chapters/boston/schedule.html>

Detailed announcements appear inside this newsletter. All events are announced to members by email, providing sufficient notice to make plans to attend. We are currently planning events for the coming year. If you have suggestions please contact Program Chair Tom Lane.

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## **EVENING LECTURE**

### **Empirical Bayes Methods for Estimation of Adverse Event Rates in Clinical Trials and Active Surveillance**

**William DuMouchel, Ph.D.**  
**Chief Statistical Scientist**  
**Lincoln Technologies, Waltham MA**

**Date:** Monday, September 19, 2005

**Time:** 6:30 - 7:00 PM: Light dinner  
7:00 - 8:00 PM: Lecture

**Cost:** Dinner is \$8 for chapter members and students, \$10 for others. The talk is free.

**Location:** Buckingham Browne and Nichols School  
Pratt Room, Upper School  
80 Gerry's Landing Road  
Cambridge, MA

**Directions/map:** <http://www.bbns.org/directions.htm> (use Upper School directions)

**RSVP:** By Friday, Sept 16 to Sue Perry at [sperry@rhoworld.com](mailto:sperry@rhoworld.com). Please indicate whether you will attend the dinner.

**Abstract:** Assessing the risks of new drugs or other therapies is complicated by the difficulty of measuring infrequent events with limited data. Recent adoption of clinical trial reporting standards is making it easier to combine safety data from multiple clinical trials. In addition, new active surveillance techniques applied to large patient care databases can yield treatment comparisons less subject to the many potential biases of spontaneous reporting. Analyses must still confront the problem of post-hoc assessment of multiple observed differences that were not hypothesized *a priori*. The multiplicities arise both from consideration of many different adverse events and also from examination of many subgroups of patients, to check for risks that may be specific to age, gender, concomitant therapy or medical history, for example.

This talk will discuss Bayesian shrinkage methods for estimation of very many adverse event odds ratios formed from separate but presumably related 2 by 2 tables of counts. Two relatively simple Bayesian models will be introduced and compared theoretically, computationally, and with sample data analyses. A framework will be proposed for repeated use of such models in a hierarchy of analyses.

**Program chair note:** Bill DuMouchel is a former Mosteller Statistician of the Year winner. He was at MIT and Bolt Beranek Newman, Inc. before leaving Boston for Columbia University and AT&T Labs. He has now returned to the Boston area part-time as Chief Statistical Scientist at Lincoln Technologies.

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## SHORT COURSE

### Basic Concepts of Statistical Inference for Causal Effects in Experiments and Observational Studies

Donald B. Rubin  
Harvard University

Elizabeth A. Stuart  
Mathematica Policy Research

- Date:** Saturday, October 22, 2005
- Time:** 9:00 AM – 9:30 AM Check-in  
9:30 AM – 5:00 PM Course
- Location:** Seelye Hall  
Room 201  
Smith College  
Northampton, MA
- Website:** <http://maven.smith.edu/~nhorton/bcasacausal.html>
- Cost:** \$45 for BCASA members, \$65 for non-members, and \$20 for students (copy of student ID must be sent with your advance registration). This will cover the cost of the course, morning coffee, lunch, and course materials.
- Registration:** Limited to 50 participants. Mail a check (along with your name and e-mail address) for the course fee, payable to BCASA, to BCASA, c/o Nicholas Horton, Smith College, Clark Science Center, Northampton, MA 01060. Pre-registration is required. Registrations will be accepted until the course fills, but should arrive no later than October 15. No refunds after October 15, though registrations are transferable. Receipts will be available at the event. Inquiries can be directed to Nicholas Horton at [nhorton@email.smith.edu](mailto:nhorton@email.smith.edu) or 413-585-3688.
- Directions/map:** See [http://www.smith.edu/about\\_visit\\_directions.php](http://www.smith.edu/about_visit_directions.php) for directions to the Smith College campus. Parking is available in the garage on West Street (see <http://www.smith.edu/map/> for a campus map).
- Abstract:** This course will present the Rubin Causal Model perspective on understanding and teaching statistical inference for causal effects through potential outcomes. There are three parts to the course. The first part establishes the primitives that form the foundation. The second part presents inference based solely on the assignment mechanism; this perspective generalizes Fisher's (1925) and Neyman's (1923) randomization-based methods, and emphasizes the central role of the propensity score (Rosenbaum and Rubin, 1983). The third part presents inference based on predictive models for the distribution of the missing potential outcomes; formally, Bayesian posterior predictive

inference (Rubin, 1978). In practice, the predictive approach is ideal for creating statistical procedures, whereas the assignment-based approach of Fisher is ideal for traditional confirmatory inference, and the assignment-based approach of Neyman is ideal for evaluating procedures. For best practice, being facile with all three approaches is important. There is essentially no prerequisite knowledge for this course, as the material is based on an introductory course taught at Harvard University and designed for students with very little quantitative background. Examples are presented from a variety of fields, including medicine, education, and economics.

**Instructors:** Donald Rubin is the John L. Loeb Professor of Statistics at Harvard University. His research interests include causal inference in experiments and observational studies, inference in sample surveys with nonresponse and missing data problems, application of Bayesian and empirical Bayes techniques, and developing and applying statistical models to data in a variety of scientific disciplines. Elizabeth Stuart is a researcher at Mathematica Policy Research in Washington DC. She received her PhD from Harvard University. Her research interests include matching methods in causal inference, use of administrative records in census data, and use of historical patient data in clinical trials. Versions of this workshop have been presented at the University of Wisconsin Medical College, the University of Minnesota, Harvard University, the Joint Statistical Meetings, the Food and Drug Administration, and the Karolinska Institute in Stockholm, Sweden.

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## ***INTERNATIONAL CONFERENCE ON HEALTH POLICY RESEARCH***

**Date:** October 28-30, 2005

**Location:** Boston, MA

**Theme:** The theme of the 2005 International Conference on Health Policy Research is "Methodological Issues in Health Services and Outcomes Research." The rapid growth in health services and outcomes research has created a major need for transferring existing statistical methodology and developing new methods to address problems specific to multidisciplinary research. This conference is the sixth in a series. The sessions will examine a broad range of topics related to causal inference, the congruence of results obtained from different studies with different designs, and the combination of data from different sources. It aims to provide a forum for discussion of research needs and proposed solutions to statistical/methodological problems, with a series of invited speakers and workshops. The conference is typically attended by a few hundred participants and is characterized by an informal culture.

**Website:** <http://www.amstat.org/meetings/ichpr/2005/index.cfm>

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## ***SHORT COURSE***

**Negative Binomial Regression:  
Modeling Overdispersed Count Data**

**Joseph M. Hilbe**  
Adjunct Professor of Sociology and Statistics, Arizona State University  
Emeritus Professor, University of Hawaii

**Date:** Saturday, November 12, 2005

**Time:** 9:00 AM – 9:30 AM Check-in  
9:30 AM – 2:30 PM Course (Lunch break around noon)

**Location:** The MathWorks  
3 Apple Hill Drive  
Natick, Massachusetts  
<http://www.mathworks.com/company/aboutus/directions.html>

**Cost:** \$80 for BCASA members, \$135 for ASA members who do not belong to BCASA, \$195 for non-members, and \$45 for students. This will cover the cost of the course materials and lunch.

**Course Website:** <http://www.amstat.org/education/learnstat/nbr.cfm>

**Registration:** Register at the course website. Registrations will be accepted until the course fills, but should arrive no later than November 4, 2005.

**Abstract:** The course will examine the history, theory, and varieties of negative binomial (NB) regression. Particular emphasis will be given to the nature and identification of overdispersion and how the various types of negative binomial models have dealt with it. Topics to be discussed:

- Derivation of the NB as 1) a Poisson-gamma mixture model, and 2) a member of the generalized linear models (GLM) family of distributions
- Discussion of how to determine apparent from real overdispersion, and methods of accommodation in count response models
- Interpretation of the NB ancillary parameter
- Examination of the following varieties of NB: geometric, NB1, NB2, generalized NB, canonical NB, zero-truncated, zero-inflated, logit-NB hurdle, cloglog-NB hurdle, fixed effects, random effects, population averaged (GEE), random-intercepts, random-coefficients, hierarchical RE, and linear mixed NB models.
- Examination of Goodness-of-Fit tests for NB models; interpretation and evaluation of models
- Discussion of available software

**Presenter:** Since 1997 Dr. Hilbe has served as software reviews editor for *The American Statistician*. He was also the founding editor of the *Stata Technical Bulletin* (1991), was a biostatistical consultant to the Health Care Financing Administration (HCFA), and lead biostatistician for both NRMI-2 and FASTRAK, the U.S. and Canadian national cardiovascular registries respectively. Dr. Hilbe has lectured worldwide on topics related to generalized linear models, has authored some 70 journal articles and book chapters, and is co-author of "Generalized Linear Models and Extensions" (2001, Stata Press) and "Generalized Estimating Equations" (2003, Chapman & Hall/CRC). He is currently writing a book entitled "Negative Binomial Regression: Modeling Overdispersed Count Data" (2006, Cambridge University Press).

**Program chair note:** Joseph Hilbe is Adjunct Professor of sociology and statistics, Arizona State University and Emeritus Professor, University of Hawaii. He is currently writing a book entitled *Negative Binomial Regression: Modeling Overdispersed Count Data* (2006, Cambridge University Press). This course is co-sponsored by the ASA LearnSTAT program.

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## **ANNOUNCEMENTS**

### **New Fellows of the ASA and IMS**

Two Boston area statisticians became fellows this year. Chapter member Mei-Ling T. Lee was elected a fellow of the IMS. Congratulations, Mei-Ling! Jun S. Liu was elected a fellow of the ASA. Congratulations, Jun!

### **Annual Award Nominations**

The *BCASA Mosteller Statistician of the Year* award is presented each year at a banquet/lecture meeting in February. This award is given annually to a distinguished statistician who has made exceptional contributions to the field of statistics and has shown outstanding service to the statistical community and the Boston Chapter. Our current Statistician of the Year is Mei-Ling T. Lee. Previous recipients of the BCASA Mosteller Statistician of the Year Award are Fred Mosteller, Herman Chernoff, Marvin Zelen, Ralph D'Agostino, William DuMouchel, Don Rubin, Nan Laird, David Hoaglin, Arlene Ash, Richard Goldstein, Cyrus Mehta, Alan Gelfand, Alan Zaslavsky, John McKenzie, and Louise Ryan. Anyone wishing to make suggestions regarding possible future recipients is encouraged to contact Scott Evans with a brief description of the candidate's qualifications.

## **JSM News**

It's confirmed! The Joint Statistical Meetings will take place in Boston in 2014, the 175<sup>th</sup> anniversary of the founding of the American Statistical Association. Did you know ASA started in Boston? Read more history at the ASA website: <http://www.amstat.org/about/index.cfm?fuseaction=history>.

## **Chapter Dues**

The BCASA newsletter is emailed to current members. Please be sure your membership is current by using your annual ASA membership renewal form and sending your BCASA dues to ASA. The BCASA membership fee is only \$9 (it's only \$3 for students) and BCASA members get discounts for events. Instructions are on our web site at <http://www.amstat.org/chapters/boston/join.html>. See the ASA web site for more information, including ASA membership discounts: <http://www.amstat.org/membership/index.cfm?fuseaction=join>.

## **BCASA Planning Committee Meetings**

The BCASA Planning Committee meets every six weeks or so and new members are always welcome. The agenda varies but most of the meeting time is spent planning events, and a little time is spent eating dinner. The Planning Committee membership includes the officers, the committee chairs, and other interested members, and there are usually about 12 to 15 people at the meetings. The next meeting is tentatively scheduled for October 6, 2005. The most up-to-date information regarding the meeting schedule will be posted on our website. If you have ideas for a specific event or for the chapter in general, or if you would like to join the Planning Committee, please contact any of the chapter officers listed on the last page of this newsletter.

## **Chapter Election Results**

In January 2006, newly-elected BCASA officers begin their terms. Shelley Hurwitz will start her second two-year term as Vice President, Maureen P. Mayer will start her second two-year term as Secretary, Nicholas Horton will start his second three-year term as Council of Chapters Representative, and Rui Wang will start her two-year term as Treasurer. Congratulations to all!

## **Member News**

Long time chapter member and Past President Kathy Monti was elected to the ASA Board of Directors as Council of Chapters Board Representative. Congratulations, Kathy!

Congratulations also to chapter member and Program Chair Tom Lane who received the 2005 Service Award for the Boston Chapter. Tom was selected in recognition of many years of dedicated service, in particular for substantial contributions as Program Chair, for developing and maintaining the chapter website and email lists, and as an active member of the Planning Committee.

Farewell and good luck to Michael Posner, who served as BCASA Treasurer for over five years. Michael left our area for a job at Villanova University. Special thanks to Rui Wang for accepting the Executive Committee's invitation to start her upcoming term as Treasurer early, upon Michael's departure during the summer.

## **Statistical Volunteerism Special Interest Group**

An ASA Special Interest Group in Statistical Volunteerism is forming. Statisticians provide many types of volunteer work for statistical associations and pro bono work to enhance human welfare. This special interest group is in the process of delineating opportunities for volunteers and exploring ways of moving toward becoming an ASA section. People interested in volunteering their time and expertise can contact Jonathan Kurlander at [jlk@mn.rr.com](mailto:jlk@mn.rr.com).

## **Isolated Statisticians Meeting**

The New England Isolated (Academic) Statisticians Meeting (NEISM) 2005 will be held at Bryant University in Smithfield, RI, on Saturday, November 12, 2005 from 9:00 a.m. to 4:30 p.m. For more information please contact the local arrangement coordinator for NEISM 2005: Phyllis Schumacher, [pschumac@bryant.edu](mailto:pschumac@bryant.edu), (401) 232-6328.

### **Call for Massachusetts State Science Fair Judges**

The Massachusetts State Science Fair (MSSF) is for students in grades 9 through 12 in public, private, and parochial schools. The fair is held in early May at the Massachusetts Institute of Technology. Many of the fair's projects involve the analysis of data. If you have a degree from a four-year college/university and are interested in being a judge at the 2006 fair, please contact the judging committee at [judging@scifair.com](mailto:judging@scifair.com). Chapter members who became (or are) MSSF judges should contact any member of the Planning Committee so that they may be acknowledged.

### **Elementary School Statistics**

We are starting to plan an activity for elementary school students. Do you have any experience or ideas that you would like to share? Are you interested in participating in a statistics fair for grades three through six? Please email Maureen Mayer at [mop@eglr.net](mailto:mop@eglr.net) and please include "Stats Fair" in the subject line.

### **Weather Cancellation Policy**

The members of the Planning Committee do not remember ever having any weather cancellations. Nevertheless, if the weather causes an event to be cancelled, the people who provided emails when they RSVPed will receive an email notification. The cancellation will also be posted on the BCASA website.

### **Nominate a Student for Mu Sigma Rho**

Mu Sigma Rho is the national honorary society for statistics. Its purpose is to encourage scholarly activity in statistics and recognize outstanding achievement among undergraduate students in statistics. Last year the Boston Chapter of the American Statistical Association affiliated with Mu Sigma Rho, and an inaugural group of nine students were honored in the spring. We encourage BCASA members to nominate students for membership. Faculty members and professional statisticians may nominate students at educational institutions in Massachusetts, Vermont, New Hampshire, and Maine. The nominator should submit a copy of the student's academic transcript, evidence that the nominee has satisfied the membership requirements described on the website given below, and contact information for the student to the Mu Sigma Rho subcommittee chair by March 1<sup>st</sup> of each year for induction that year. When all information is verified and the student is deemed eligible, the subcommittee chair will forward recommendations to the BCASA Planning Committee, which will ordinarily approve the nominations. Letters will then be sent to the students (with a copy to nominators) inviting them to join Mu Sigma Rho. Students who accept nomination will be invited to an induction ceremony to be held at one of the BCASA spring evening lectures. The Planning Committee has approved the following benefit for the 2005-06 academic year: Students who are inducted and pay the initiation fee (currently \$5) will receive complimentary one-year memberships in ASA and BCASA and a subscription to *Chance*. For further information, please contact Nicholas Horton, Department of Mathematics, Smith College, Northampton, MA 01063-0001, or view the website <http://www.math.smith.edu/~nhorton/msr.html>.

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## **JOB OPPORTUNITIES**

**STATISTICAL SOFTWARE DEVELOPER:** The MathWorks of Natick, MA, is seeking a creative statistician to help propose, plan, and develop the statistical programming tools we offer to our MATLAB customers. This includes the design, architecture, and development of statistical software and GUIs written in MATLAB and/or Java. The ability to work constructively in a team environment is vital. The candidate should have experience taking a project from concept to shipping. Qualifications include an M.S. with 3-5 years industry experience or a Ph.D.; expertise in computational math; experience with MATLAB, R, S-plus, or similar technical computing language; excellent written and verbal communication; ability to formulate realistic goals and meet commitments; and experience writing software for use by others. To apply, visit <http://www.mathworks.com/company/jobs/>. For more information contact Tom Lane, [tlane@mathworks.com](mailto:tlane@mathworks.com).

**EMPLOYMENT POLICY RESEARCHER:** The Institute for Community Inclusion, an internationally recognized disability research and training center at UMass Boston, is looking for a researcher to support projects on the employment and labor market participation of people with disabilities and health conditions. Demonstrated skills in multivariate analysis and the use of SPSS (or similar program) strongly desired. Applicants should have experience working with research teams and coordinating project activities. Education requirements: master's degree plus two years of experience in economic, social science, or employment policy research; or bachelor's degree with five-six years of experience. Knowledge of disability services preferred. Excellent benefits, including free tuition at UMass Boston. For more information, check <http://www.communityinclusion.org> or contact Jill Zukerman, [jill.zukerman@umb.edu](mailto:jill.zukerman@umb.edu), 617/287-4345. ICI is committed to hiring a diverse workforce that includes people with disabilities. The location of the job is at 20 Park Plaza, Boston, MA. Full job description: <http://www.communityinclusion.org/about/opportunities.html#rsc>.

## OFFICER REPORTS

### Program Chair

We began the year with a visit from then ASA president-elect Fritz Scheuren, who spoke at BB&N about “Our Remembered Past, Confusing Present, and Hard to Predict Future.” We are lucky that, as the second-largest chapter, we are able to attract such distinguished speakers. (Former ASA president Bob Mason visited us last year.)

In our evening lecture series Paola Sebastiani spoke in October on new statistical methods stimulated by mapping of the human genome. The next month, Greta Ljung gave a timely presentation about statistical methods used in modeling insurance losses from natural disasters, using Hurricane Charley as an example. With the current situation on the Gulf coast caused by Hurricane Katrina, it's easy to forget the impact that Hurricane Charley had on Florida last summer.

December began with a panel discussion at Averion, featuring statisticians who have started their own companies. Marvin Zelen moderated. Panelists were Phil Lavin (Averion), Sonja McKinlay (New England Research Institutes), and Cyrus Mehta (Cytel Software). Thanks to Phil for offering his offices to us. Later in the month, David Draper of UCSC offered a short course on “Bayesian Modeling, Inference, and Prediction.” Last year's other short course was in May. Judith Singer and John Willett of Harvard presented “Individual Growth Modeling: Modern Methods for Studying Change.” The course featured their book *Applied Longitudinal Data Analysis*.

In January, Linda and Tom Marx hosted our annual winter party, at their home in Cambridge. A few intrepid souls who braved a blizzard and snow and parking bans had a great time. There were two special events in February. First, we hosted a Career Day, at Simmons College, where students learned what statisticians do and what job opportunities they have. Thanks to Kerstin Allen for organizing and Bob Goldman for hosting this event. Later in the month Mei-Ling Ting Lee received the Frederick Mosteller Statistician of the Year award at our annual award banquet. She spoke about her research on “Applications of Threshold Regression in AIDS Research, Environmental Research, and Proteomic Studies.”

In other chapter activities, as part of the chapter's Strategic Initiative Outreach Program for statisticians and students outside the Boston Area, Herman Chernoff spoke at the University of Massachusetts in Amherst on “Acoustic Evidence in the Assassination of President Kennedy” and at Smith College, in Northampton, on “The Waterworks Problem.” He used this problem as a way to introduce basic statistical concepts.

Two more evening lectures completed the spring program. In March, Eugene Demidenko of Dartmouth spoke about “Mixed Models: Future Directions and Applications,” based upon his new book, *Mixed Models*. Then in April, Dick and Bob Michaud spoke about “The Resampling Revolution in Portfolio Management: History, Recent Developments, Long-Term Implications.”

We are working on another good program for this year. This will feature a return to Boston by Bill DuMouchel and more short courses: one in Northampton by Don Rubin and Elizabeth Stuart and another in Natick by Joe Hilbe of Arizona State University. See the descriptions in this newsletter for more information. We always welcome ideas for future events, offers of places to meet, and volunteers to present lectures. Contact the Program Chair (Tom Lane), the chapter President (Scott Evans), or any member of the Planning Committee.

*Submitted by Tom Lane*

### ASA Council of Chapters Representative

The ASA is working both nationally and locally to more effectively reach the K-12 population by developing resources, publications, training and other activities that can help communicate the excitement and promise of statistics. National activities include an “adopt a school” program, teacher workshops, competitions and prizes, and electronic resources e.g., mailing lists for teachers, sample lesson plans, and classroom activities). See <http://www.amstat.org/education/index.cfm?fuseaction=k12>.

The Boston chapter is looking for ideas and people with the energy to follow through with them locally. Seed money is available for pilot projects. For information please contact me or one of the other Planning Committee members.

*Submitted by Nicholas Horton*

The BCASA Newsletter is published four times during the academic year and is emailed to current BCASA members. Send comments to any officer or newsletter production committee member.

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**BCASA OFFICERS**

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<i>President, 2005-06</i>	Scott Evans, Harvard School of Public Health
<i>Program Chair, 2005-06</i>	Tom Lane, The MathWorks
<i>Vice-President, 2004-05</i>	Shelley Hurwitz, Harvard Medical School
<i>Secretary, 2004-05</i>	Maureen P. Mayer, Raytheon Company
<i>Treasurer, 2005</i>	Rui Wang, Harvard School of Public Health
<i>Council of Chapters Representative, 2003-05</i>	Nicholas Horton, Smith College
<i>Past President, 2005-06</i>	Robert B. Smith, Cambridge-MIT Institute

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**BCASA NEWSLETTER PRODUCTION COMMITTEE**

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